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years. He says that he is in good health, but has suffered much from the revolutionary movement, both physically and morally, and that they feel themselves isolated from the world. He hopes he may, however, soon begin his scientific work again, if peace is made."

NOTES ON RECENT BRYOLOGICAL LITERATURE

Bryophytes with reference to Plant Genetics.—A small but valuable text[1] on Plant Genetics by the Coulters, at the University of Chicago, has recently appeared, and pages 187 to 189 take up a brief treatment of the work which has been done in the mosses and liverworts bearing on questions of heredity.

In dioecious liverworts, such as *Marchantia*, the antheridia and archegonia appear in about equal numbers, and it was supposed, then, that the four spores (tetrads) produced by the spore mother-cell of the sporangium would be equally divided as to sex, two of them producing antheridial plants and the other two archegonial plants. Noll[2] found that gemmae from antheridial gametophytes produced only antheridial gametophytes, and those from archegonial gametophytes only archegonial ones. Strasburger[3] then worked on *Sphaerocarpus*, in which the four spores of the tetred hang together, and found that the four gametophytes produced from the four spores of the tetrad were always two antheridial and two archegonial, so that the sexes must be differentiated in the formation of the four spores of the tetrad during the so-called "reduction-division" of the nucleus of the spore mother cell of the sporangium.[4]

During these reduction divisions certain organs of the nuclei known as "chromosomes" split and separate to enter into the formation of the newly-formed nuclei, and Allen[5] not long ago claimed that the nuclei of the archegonial gametophyte of *Sphaerocarpus* have one larger chromosome, and the nuclei of the male gametophyte one very small one. A monoecious liverwort, however, must have both antheridial and archegonial characters in each spore, and what happens in some species of *Riccia* where antheridia and archegonia are produced by the same gametophyte but at different times?

The authors refer to the Marchal's work on *Funaria*[6], a species which, like *Marchantia*, is dioecious. Clipping fragments from young sporophytes the Marchals were able to grow these directly into gametophytes, thus leaving out of the life-cycle the reduction division. According to theory the resulting gametophytes should, of course, all be dioecious, producing both antheridia and archegonia, and this was exactly the result obtained.

O. E. J

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[1] Coulter, John M., and Coulter, Merle C. Plant Genetics. University of Chicago Press. 1918.

[2] Noll. Sitzungsb. Nied. Gesell. Bonn. Naturw. Abt. 1907. S. 68.

[3] Strasburger. Biol. Centralblatt **20**: 657, 1900. and Jahrb. Wiss. Bot. **48**: 427–500. 1910.

[4] See BRYOLOGIST **20**: 64–66. 1917.

[5] Allen. Science **46**: 466–467. 1917.

[6] Marchal, El & Em. Bull. Acad. Roy. Begique, Cl. Sci. **1907**: 765–789; **1909**: 1249–1288; and **1911**: 750–778.

Effect of the Katmai eruption[1] on Mosses.—Since the great eruption in 1912 of the volcano Katmai, Alaska, R. F. Griggs has directed expeditions to that region, and among several articles relating to these expeditions one is of more strictly botanical interest,[1] and it is interesting to note what progress the mosses may have made towards recovering their former important place in the vegetation of the region.

The thick mantle of volcanic ash transformed much of the region into a bleak desert, but in the last few years considerable vegetation has appeared, coming not from seedlings but mostly from plants of the previous vegetation which have been able to survive more or less complete burial. Sphagnum bogs have been almost completely destroyed, even when covered by but two or three inches of ash, and here, as elsewhere, the common horsetail (*Equisetum arvense*) has assumed considerable importance as a ground-cover. In speaking of the forest, Griggs says:

"In the deeper parts of the forest the branches bore great masses of moss, which, of course, caught and held quantities of ash. During the interval that has followed the moss has grown out over the ash, making larger masses than ever and giving the trees a very bizarre appearance.

"The most striking feature of the revegetation of the forest, however, is to be found on the ground. When the ash dried out after the first heavy rains following the eruption, deep cracks appeared like the mud cracks in a dried-up puddle. These cracks are, of course, long since filled up by drifting ash, but a heavy growth of moss (*Amblystegium* sp.) has come up in every crack, giving the ground a most curious reticulated appearance.

"This curious distribution of moss is apparently due to the fact that the spores found lodgment in the cracks. The same moss often starts around fallen sticks or other objects on which wind-borne spores would settle. One of the most striking instances of this was a sea-urchin shell, dropped by a raven and which was embedded in a mass of moss that had grown up around it."

O. E. J.

Riddle on Pyrenothrix nigra[1]—I find no reference in our file of THE BRYOLOGIST to the new genus and species, *Pyrenothrix nigra*, described by Dr. Lincoln W. Riddle in 1917, from material collected in Florida in 1897 on bark of scrub oaks and on living oleander by Prof. Roland Thaxter. Riddle says:" On account of the distinctive combination of a byssine thallus and a pyrenomycetous fruit this new genus may appropriately be named as follows: *Pyrenothrix*, gen. nov." The new lichen has gonidia of the *Scytonema* type and fruit of the perithecial form, evidently belonging to the family *Pyrenidiaceae*, but differs from all other genera in that family by the byssine character of the thallus and the muriform spores. "The structure of the thallus and the relation of hyphae and gonidia are seen to be exactly that of *Coenogonium.*" The thallus is "brownish-black, spreading over the substratum without definite limits and closely adnate, byssine, when wet soft and gelatinous, when dry harsh and not at all spongy."

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[1] Griggs, Robert F. Scientific Results of the Katmai Expeditions of the National Geographic Society. I. The Recovery of Vegetation at Kodiac. Ohio Journ. Sci. **19:** 1-57. Nov., 1918.

[1] Riddle, Lincoln W. *Pyrenothrix nigra*, Gen et Sp. Nov. figs.4 Bot.Gaz. 64: 513-515. 1917

Hotson on surgical sphagnum.[1]—Two articles by Hotson appeared recently on the use of sphagnum for surgical dressings. One article is published by the American Red Cross[2] and contains a good popular treatment of the distribution and structure of sphagnum, sphagnum bogs, uses of sphagnum, utilization of the plant by Great Britain, a history of the development of the use of the plant in the United States, then follow descriptions of the work of collecting and sorting, making bandages, a discussion of the absorbency of sphagnum, the species best suited to the work, and finally sterilization. This paper is accompanied by a number of photographs, drawings, and tables. The second article,[3] published by the Puget Sound Biological Station, takes up the subject in much the same manner but with much more detailed directions as to the various operations from the time the sphagnum is gathered up to its final use as a surgical dressing. This article also is fully illustrated and it is accommpanied by a bibliography of twelve titles accredited to eight authors. These two articles constitute the most complete treatment of the subject thus far published. O. E. J.

Notes on lichens.—Fink[4] has recently reviewed two articles by Danilov[5] which disprove Elfving's contention (1905) that the fungal hyphae in lichens cut off colorless spherical cells which later become green and divide rapidly, thus constituting the "gonidia" or so-called algae of lichens. Danilov found that unstained preparations might lead to such conclusions but that stained material showed the entrance of the fungal hyphae into the algal cells and that the pale alga-like cells were in reality algal cells killed by the parasitic fungal hyphae plainly visible within them. As to the relation of fungus to alga in the lichen, Danilov, in the words of Fink, "admits that there may be osmotic filtration of certain materials from the alga to the lichen [fungus], and the like passage of others from the lichen [fungus] to the alga. However that may be, Danilov finds the final result to be the absorption of the algae by the lichen [fungus] hyphae, which enter the algal cells and form dense networks of slender, thin-walled or naked absorbing threads. Although the lichen thallus with its prepared peptones and certain other organic materials is probably a favorable substratum for the algae, yet the lichen [fungus] is parasitic on the algae, which are killed in large numbers as a result of the parasitism. On the whole the algae thrive better outside the association with the lichen [fungus], while the lichen [fungus] does poorly or dies outright outside the association."

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[1] In this connection see also notes on another article by Hotson, THE BRYOLOGIST **21**: 90–91. Nov. 1918; and articles by Nichols, THE BRYOLOGIST **21**: 53–56. July, 1918, and **21**: 81–83. Sept. 1918.

[2] Hotson, J. W. Sphagnum as a Surgical Dressing. Published by the Northwest Division of the American Red Cross. pp. 1–31. figs. 18. tables 2. No date, probably 1919.

[3] Hotson, J. W. Sphagnum from Bog to Bandage. Publ. Puget Sound. Biol. Sta., Univ. Wash. **2**: 211–247. March 7, 1919. pls. 31–48.

[4] Fink, Bruce. Gonidia of lichens. [Contribution under head of "Notes for Students. '] Bot. Gaz. **67**: 97. Jan. 1919.

[5] Danilov, A. N. Ueber das gegenseitige Verhaeltnis zwischen den Gonidien und dem Pilzkomponten der Flechtensymbiose. Bull. Jard. Imp. Bot. St. Petersb. **10**: 33–70. 1910.

Danilov, A. N. The relation between the gonidia and the hyphae in lichens. Jour. Bot. **56**: 169–181. 1918.

In an interesting recent paper by W. B. McDougall[1] there is a general discussion of symbiotic phenomena and there is put forward a tabular classification of these various relationships. In this classification lichens, together with endotrophic mycorhizas, root tubercles, and leaf tubercles of *Rubiaceae*, are included as examples of reciprocal nutritive conjunctive symbiosis, i. e., reciprocal parasitism. McDougall says: "The word lichen, however, has been used for a long time to mean the composite structure that results from the symbiosis of lichen-fungi with algae, and no very good reason has yet been given for changing its meaning. A lichen-fungus is a fungus, it is not a lichen. There is no more reason for calling a lichen a fungus than there is for calling a mycorhiza a fungus; and it is just as absurd to call a lichen-fungus a lichen as it would be to call a mushroom a mycorhiza." O. E. J.

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Offerings—To Society Members *only*. Return postage, rather than a stamped envelope, should be sent.

Mr. Severin Rapp, Sanford, Florida.—*Bilimbia castanella* Merrill, sp. nov., collected by Mr. Rapp in Florida.

NOTE

Owing to scarcity of copy, the January and March, 1919, numbers of THE BRYOLOGIST have been smaller than usual, but it is expected that the normal number of pages will have been published by the end of the year. We would ask that you let us have your notes and articles, even if they are brief. Write up notes about what you have seen and found—others among us are sure to be interested in these things, too. Also, will you not get together material to offer in the Exchange Department and build up collections of your own? If you have not started your own collection of mosses or hepatics or lichens, you will probably not have realized what pleasure it might give you and what an added zest it might give you in your walks and visits to the fields and woods. Those of our readers who are interested in accumulating specimens from other countries will be interested in the sets of hepatics now being issued by Pearson from England, and advertised in this number of THE BRYOLOGIST.

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[1] McDougall, W. B. The Classification of Symbiotic Phenomena. Plant World **21**: 250–256. Oct. 1918.